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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Richard Ian Christopherson

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SEED INTELLECTUAL PROPERTY LAW GROUP PLLC

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EXAMINER

SMITH, CAROLYN L

ART UNIT

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1631

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/869,229	Applicant(s) CHRISTOPHERSON ET AL.	
	Examiner Carolyn Smith	Art Unit 1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 58,71 and 73-77 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 58,71 and 73-77 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>04232008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's amendments and remarks, filed 9/10/08, are acknowledged. Amended claims 58, 71, and new claim 77 are acknowledged.

Applicant's arguments, filed 9/10/08, have been fully considered but they are not deemed to be persuasive. Rejections and/or objections not reiterated from the previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

The information disclosure statement, filed 4/23/08, has been considered by the Examiner.

Claims 58, 71, and 73-77 are herein under examination.

Claim Rejections - 35 USC § 112, Second paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 58, 71, and 73-77 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This rejection is necessitated by amendment.

Claims 58, 71 and 77 recite "derivatised solid support" which lacks clarity. It is unclear how Applicant intends to define the term derivatised. One interpretation of a derivatised solid support is a solid support containing immunoglobulin derivatives (see page 8 of specification).

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Another interpretation of a derivatised solid support is a solid support containing a polymer such as polystyrene and its derivatives or methacrylate and its derivatives (see page 26). Clarification of this issue via clearer claim wording is requested.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 58, 71, and 73-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over the abstract of Gruber et al (Journal of Immunological Methods, 1993, Vol. 163, pp. 173-179) in

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view of Wysocki et al.(PNAS, 1978, Vol. 75, pp. 2844-2848) and Delamarche et al (Science, 1997, Vol. 276, pp. 779-781).

Gruber teaches the detection of the cell surface markers of CD3, CD4, CD8, CD14, CD19 and CD56. Gruber describes analysis of leukocytes in an individual with labeled monoclonal antibodies yielding quantitative and qualitative results on various lymphocyte subpopulations to monitor leukemia. The abstract does not teach the use of a derivatised solid support comprising said immunoglobulin molecules or pattern binding or covalent binding.

Wysocki et al. teach that lymphocytes from a heterogeneous population can bind directly and indirectly to a solid support coated with an antibody specific for a cell surface antigen, including fractionating, detecting and separating T and B lymphocytes (page 2844, first column, second and third paragraphs, abstract; page 2845, col. 1, fourth and fifth paragraphs; page 2848, col. 1, first paragraph). Wysocki et al. describe polyclonal antibodies (page 2844, col. 1, last 3 paragraphs to col. 2, first 6 paragraphs), as stated in instant claim 74. Wysocki et al. describe using Fab fragments (page 2844, col. 2, fourth paragraph), as stated in instant claim 76. Wysocki et al. teach that this method is a simple and inexpensive alternative to flow cytometry (page 2844, first column, second and third paragraphs). Wysocki et al. do not teach pattern binding or covalent binding.

Delamarche et al teach a method of applying different immunoglobulins in a pattern on a derivatised solid support with high resolution and glass (page 779, column 1 and column 2; and page 780, col. 1, last 2 paragraphs and Figure 2 caption). Delamarche et al. describe molecules being immobilized via covalent binding to the solid support (page 779, col. 3, second paragraph; page 781, col. 2, second paragraph), as stated in instant claim 71. Delamarche et al. describe

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immunoglobulins are patterned on substrates confined to specific areas (abstract), binding immunoglobulins specific for each region (page 780, col. 2, second paragraph), and a patterning step that is local with exposure of biomolecules to the surface that occurs only on targeted areas without cross interferences (page 781, col. 2, second paragraph). Delamarche et al teach that the method is inexpensive and has high spatial definition and is inherently general, so that many assays in current use can be readily miniaturized without the need for lithographic equipment (page 781, second column).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to make a solid support as taught by Wysocki et al. comprising the immunoglobulin molecules CD3, CD4, CD8, CD14, CD19, CD56 as taught by Gruber wherein the motivation would have been to bind leukocytes from whole blood to antibodies bound to a solid support which was simple and inexpensive, as stated by Wysocki et al. (page 2844, first column, lines 6-13 after the abstract). It would have been further obvious to make patterns on a derivatised solid support as taught by Delamarche et al. in the method and device of Gruber and Wysocki et al. wherein the motivation would have been to providing an antibody array with high spatial resolution which is economical to produce and compatible with many existing chemistries and substrates already used to attach macromolecules to substrates, as stated by Delamarche et al. (page 781, col. 2, second paragraph).

Thus, Gruber in view of Wysocki et al. and Delamarche et al. make obvious instant claims 58, 71, and 73-76.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 77 is rejected under 35 U.S.C. 103(a) as being unpatentable over the abstract of Gruber et al (Journal of Immunological Methods, 1993, Vol. 163, pp. 173-179) in view of Wysocki et al.(PNAS, 1978, Vol. 75, pp. 2844-2848) and Delamarche et al (Science, 1997, Vol. 276, pp. 779-781) as applied to claims 58, 71, and 73-76 above, and further in view of Dano et al. (US 5,519,120).

Gruber et al in view of Wysocki et al. and Delamarche et al. teach the limitations of instant claims 58, 71, and 73-76. They do not describe a nitrocellulose-coated glass slide.

Dano et al. describe a nitrocellulose-coated glass slide and using various antibodies, including monoclonal and polyclonal antibodies as well as using complexing agents such as

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protein G to form a complex with immunoglobulins and link to a solid support (col. 17, second and third paragraphs; and col. 19, fourth to seventh paragraphs; col. 83, sixth paragraph).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to make a solid support as taught by Wysocki et al. comprising the immunoglobulin molecules CD3, CD4, CD8, CD14, CD19, CD56 as taught by Gruber wherein the motivation would have been to bind leukocytes from whole blood to antibodies bound to a solid support which was simple and inexpensive, as stated by Wysocki et al. (page 2844, first column, lines 6-13 after the abstract). It would have been further obvious to make patterns on a derivatised solid support as taught by Delamarche et al. in the method and device of Gruber and Wysocki et al. wherein the motivation would have been to providing an antibody array with high spatial resolution which is economical to produce and compatible with many existing chemistries and substrates already used to attach macromolecules to substrates, as stated by Delamarche et al. (page 781, col. 2, second paragraph). It would have been further obvious to use a nitrocellulose-coated glass slide as the derivatised solid support as taught by Delamarche et al. and in the method and devices of Gruber and Wysocki et al. wherein the motivation would have been to use any suitable material for detecting antibodies for therapeutic use and drug screening, as stated by Dano et al. (col. 1, second paragraph and col. 19, sixth paragraph) as well as providing an antibody array with high spatial resolution which is economical to produce and compatible with many existing chemistries and substrates already used to attach macromolecules to substrates, as stated by Delamarche et al. (page 781, col. 2, second paragraph).

Thus, Gruber in view of Wysocki et al., Delamarche et al., and Dano et al. make obvious instant claims 58, 71, and 73-77.

Applicant's arguments are moot since they are based on references no longer used in the prior art rejections.

Conclusion

No claim is allowed.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 CFR §1.6(d)). The Central Fax Center number for official correspondence is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. If you have questions on access to the Private PAIR system, please contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, please call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carolyn Smith, whose telephone number is (571) 272-0721. The examiner can normally be reached Monday through Thursday from 8 A.M. to 6:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie Moran, can be reached on (571) 272-0720.

December 1, 2008

/Carolyn Smith/
Primary Examiner
AU 1631